HON. RICHARD A. JONES

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF WASHINGTON AT SEATTLE

BOMBARDIER INC.,

Plaintiff,

v.

MITSUBISHI AIRCRAFT CORPORATION, MITSUBISHI AIRCRAFT CORPORATION AMERICA INC., AEROSPACE TESTING ENGINEERING & CERTIFICATION INC., MICHEL KORWIN-SZYMANOWSKI, LAURUS BASSON, MARC-ANTOINE DELARCHE, CINDY DORNÉVAL, KEITH AYRE, AND JOHN AND/OR JANE DOES 1-88,

Defendants.

No. 2:18-cv-1543-RAJ

DECLARATION OF MICHAEL BORFITZ IN SUPPORT OF MOTION FOR PRELIMINARY INJUNCTION

I, Michael Borfitz, declare as follows:

1. I am an individual and over the age of twenty one. I have personal knowledge of the matters addressed herein.

2. This declaration is being submitted in support of Bombardier Inc.'s Motion for Preliminary Injunction that was filed in this matter.

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BACKGROUND AND QUALIFICATIONS

3. I am an FAA Designated Engineering Representative (DER), authorized to approve engineering data for the FAA in the areas of Flight Test and Powerplant Installations on both Transport Category and Small Airplanes. I have further FAA delegation from the FAA as a Management DER, authorized to perform FAA certification project management duties for the Agency, acting as an FAA project manager. I am authorized to organize an applicant's certification program, directing, overseeing, and managing the task of technical assessments and findings of compliance. There are currently only 80 Management DERs in the United States, it is a position of trust and responsibility that requires the highest degree of integrity, knowledge and experience in aircraft certification.

4. I received a Bachelor's Degree in Aeronautical Engineering from Rensselaer Polytechnic Institute in 1980, and have been actively engaged in aircraft type and production certification since then, including approximately 20 years with the FAA and 13 years with Boeing. I started my career as a Flight Test Engineer for the Boeing 757, 767 and 737-300 type certification (TC) programs, and since then have been directly involved in dozens of airplane and engine TC programs and hundreds of Supplemental Type Certificate (STC) programs, from small airplane engine changes to winglet STC programs on Boeing 737, 757 and 767 airplanes and the recent conversion of a Boeing 737-300 from a passenger airplane to a firefighting water bomber.

5. I have held a variety of positions, including FAA Aircraft Certification Office manager, Standards Staff manager, responsible for development and international coordination of federal aviation regulations, and Program Manager with responsibility for FAA acceptance of foreign type certificated aircraft such as the Gulfstream G150 and G280.

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In the Boeing Company I was Senior Manager of Group Quality, the office responsible for maintaining the integrity of the entire Boeing production system as authorized by the FAA issued Production Certificate #700, and became an Associate Technical Fellow for Safety and Certification, acting as an internal consultant for Boeing in matters related to continued operational safety as well as type and production certification regulations.

TASK REQUESTED OF ME

6. I have been asked to review certain documents in connection with the above-captioned litigation matter. Specifically, I have been asked to review the Declaration of Robert Hansman, Jr. ("Hansman Decl.") submitted by the defendants in this lawsuit. I was asked to provide my opinion regarding the accuracy of the facts and opinions provided by Dr. Hansman.

7. In addition to Dr. Hansman's declaration, I have also reviewed the complaint in this matter, the declarations of Dan Burns, David Tidd, and Stephen Boyd, and the exhibits attached thereto. Specifically, I have reviewed the documents attached to the declarations of Dan Burns and David Tidd (the "Bombardier Documents") which Bombardier has informed me contain proprietary and confidential trade secrets of Bombardier.

8. What follows is my opinion of Dr. Hansman's declaration.

The Relevance of Airplane Similarities and Differences

9. Dr. Hansman makes numerous statements to the effect that the Bombardier aircraft to which the Bombardier Documents pertain are sufficiently different from the Mitsubishi Aircraft Corporation America, Inc. ("MITAC") aircraft that the Bombardier

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Documents would be of no value to MITAC's certification procedure. That contention is simply false.

10. 14 CFR Part 25 “Transport Category Airplanes” ("Part 25") is written in a manner that is intended to avoid stifling innovation. In that regard, the regulations are written as minimum requirements that are performance based, as opposed to design based. This means two slightly different transport-category airplanes with two engines, swept wings and conventional aerodynamic controls may expect to be treated in a similar manner by the regulatory authority.

11. The MITAC MRJ and Bombardier CSeries and Global series aircraft are similar enough that their type certification plans might be expected to be similar enough that many regulatory requirements might be interchangeable. The bases for that conclusion are as follows:

- Similarities
    - Both the MRJ and CSeries/Global models are Part 25 airplanes, with swept wings, twin engines, fly-by-wire controls and ProLine avionics, providing a similar look & feel in the cockpit. In this important sense, these aircraft are similar.
- Differences: There are differences between the models, but the basic regulatory requirements are still the same:
    - MRJ is designed with a conventional control column, CSeries has a side stick control. The FAA has published several special conditions to address the differences, without amending the baseline regulations.
    - MRJ and CSeries airplanes are twin jets, MRJ has wing mounted engines, CSeries has “centerline thrust,” rear-mounted engines. Centerline thrust is a

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common phrase in aviation but is not found in the regulations. The applicable regulations only consider the number of engines.

- The CSeries model has a "T" tail, but the MRJ has a conventional, fuselage mounted tail. Again, FAR 25 does not consider that specific difference because the flying quality regulatory requirements remain unchanged.

12. The MITAC MRJ and Bombardier CSeries and Global series aircraft are equivalent from the perspective of Part 25 regulations and the type certification requirements that would be imposed by Transport Canada, the Federal Aviation Authority ("FAA") or Japan Civil Aviation Bureau ("JCAB"). Part 25 requirements are applied equally to all multi-engine airplanes with more than 19 seats or a maximum takeoff weight greater than 19,000 pounds, which must be certificated in the transport category.

13. Any differences between the aircraft can be addressed with appropriate regulatory interpretations or other tools available to the regulatory agency such as special conditions, equivalent levels of safety, exemptions, etc. A certification basis is typically proposed by the applicant, in this case either Bombardier or MITAC, and is then negotiated with the governing regulatory authority. Bombardier has a long history of continuous aircraft design and certification, going back to de Havilland, which started in 1928. In contrast, MITAC has no recent airplane development experience.

14. There currently is no Part 25 bilateral agreement between the JCAB and FAA, which means the JCAB has not been recognized by the FAA as a competent authority for Transport Airplane Category certification. There is a current Part 25 bilateral agreement with Transport Canada, and the FAA recognizes and accepts Transport Canada certifications. This is a critical distinction, because a successful Transport Canada design approval is very likely

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to be acceptable to the JCAB. Thus, any Bombardier certification documentation may have enhanced credibility with the JCAB through little effort on the part of MITAC.

15. Further, my research has shown that both JCAB and Transport Canada refer to the US Federal Aviation Regulations for their regulatory requirements, which means a Japanese applicant can literally copy a proposed certification plan from a Canadian applicant and present that plan to the JCAB with little or no modification, and reasonably expect that plan to be accepted, because both regulators refer directly to the FAA requirements as a common source.

16. A compliance plan for any aircraft, especially a transport category airplane, will have a certification plan that may have thousands of possible combinations of the regulations, depending on the design philosophy and the sophistication and experience of the applicant. In the case of similar aircraft, if a manufacturer who is new to type certification can have access to certification plans for a similar airplane, even the differences can be accommodated and quickly revised to develop an acceptable plan. This applies to the entire airplane as well as each component and every system in which those components are incorporated. Any test or analysis plan will have some value to a competitor. This is why the FAA will not typically release certification proposals, test plans, analyses and final reports when requested through the Freedom of Information Act.

17. My conclusion is that the MITAC MRJ and Bombardier CSeries and Global series aircraft are similar enough that nearly any certification plan or showing of compliance generated by Bombardier is very likely to have value for the MITAC MRJ certification program, with little or no modification to Bombardier documents because the fundamental regulatory requirements are essentially the same. Dr. Hansman is simply wrong when he

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argues that the differences between the MITAC and Bombardier models are significant enough that Bombardier Documents will add little value to the MRJ program.

The Importance of Flap Skew Detection Systems

18. Paragraph 37 Page 13 of Dr. Hansman's declaration states, "Owing to the significant design and operational differences between the ballscrew actuator flap SDS of the Global 7000 and the RVDT based flap SDS of the MRJ aircraft, information about the Global 7000 flap SDS system is not applicable or useful to the MRJ flap SDS system. Exhibits A and B to the Burns declaration thus are not useful to the MRJ."

19. Paragraph 38 page 13 of Dr. Hansman's declaration closes with "But Exhibits A and B provide no such time- or cost-saving benefits for the MRJ, which employs an entirely different type of flap SDS than the Global 7000." Dr. Hansman's statements are incorrect for at least the following reasons:

- The regulations do not envision types of flap actuation systems in a manufacturer's design. Rather, the regulatory standards provide the minimum standards that must be met for a given design.
- Applicable sections of Part 25 and other applicable regulations apply equally to any flap system, regardless of actuation type. Thus, the MRJ and Global 7000 flap and flap skew systems are considered equal by the regulations and the methods of compliance will certainly be similar if not identical. If MITAC has access to the full SDS compliance plan for the Global 7000, it is possible that they can present it to the JCAB with little or no alteration.
- There are specific, applicable regulations listed by paragraph and subparagraph on Page 31 of the Bombardier Powerpoint presentation of January 2016 (Burns exhibit A

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& B). I have determined that the regulations proposed on Page 31 provide a "cookbook" for type certification of a skew detection system.

  - NOTE: There are literally thousands of possible combinations of regulations that might apply to any given certification plan for a complex system such as the SDS. There is clearly great value for MITAC to have this document identifying the definitive subset of potentially applicable regulations.

- In my examination of the Powerpoint presentation I found that it is relatively simple to translate the SDS compliance plan from the Global 7000 to the MITAC MRJ without regard to the design differences noted in Dr. Hansman's declaration.
- The test conditions reported by Bombardier were developed to show full compliance to the regulations in the most efficient manner possible. Again, decades of Bombardier experience have contributed to that efficiency.
- The regulations, test conditions, probabilities of failure (Page 27) and environmental requirements comparison (Pages 61-67) can provide a competitor with the full range of criteria for certification of a flap skew system.
- The selection of the specific and detailed regulations and subsections on Page 31 of the presentation reflect arduous negotiations with Transport Canada. Significant time and in-depth study is typically required to propose a detailed certification compliance list. A new and inexperienced applicant, such as MITAC, may not be as capable or experienced in generating a list that will show full compliance and ensure safe operation, without missing critical items, or "overshooting" by selecting extraneous regulations and tests, thus adding cost, resources and flow time.
- Page 3 of the presentation exposes Bombardier information that may be sensitive, regarding "revised skew detection methodology" and "skew detection design change," and may give a competitor a sales advantage.

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20. For at least these numerous reasons, I conclude Dr. Hansman's opinion – that Exhibits A and B to the Burns declaration are not useful to the MRJ – is simply wrong.

CAFM Calculation Methodology

21. Paragraph 43 Page 15 of Dr. Hansman's declaration states "The formulas and methods contained in Exhibit A to the Tidd Declaration are generally standard and found in textbooks." Dr. Hansman's statements are incorrect for at least the following reasons:

- Exhibit A to the Tidd Declaration, "CAFM Calculation Methodology," clearly states at the bottom of each page; "BOMBARDIER CONFIDENTIAL PROPRIETARY INFORMATION, NOT FOR DISCLOSURE UNDER ANY ACCESS TO INFORMATION OR SIMILAR LAWS OR OTHERWISE WITHOUT THE PRIOR WRITTEN PERMISSION OF BOMBARDIER INC." I find it difficult to believe any person could possibly ignore that statement.
- Specific regulations are declared in the document numerous times, meaning this is a compliance document. As previously stated, the combination of regulations in a compliance document for a complex system may have a vast number of combinations of specific, detailed regulations cited, not to mention the sequence of algorithms as they apply to the showing of compliance, which may add an order of magnitude to the combination. This may be used as a "cookbook" for developing a fully compliant CAFM. I therefore conclude this is proprietary, non-public information.
- The Bombardier methodology in this document, in its totality, reflects full compliance with the applicable regulations.

22. Paragraph 40, page 14 of Dr. Hansman's declaration states in part; "Most of [Exhibit A] is information that is available in the public domain." Dr. Hansman ignores the fact that the value to Bombardier resides in the methods used to incorporate the information

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and determine precisely what regulations apply to make a showing of compliance. This combination and sequencing of information in conjunction with the selection of regulations has great value both to Bombardier and to MITAC.

Reduction of Temperature, Airspeed, Altitude and Mach Number Errors, Lag Effects and Ground Position Errors

23. Paragraph 51 Page 18 of Dr. Hansman's declaration states in part, "The specific air data system results are unique to the CS300 and not transferable or applicable to other aircraft." Dr. Hansman ignores the fact that Bombardier's trade secret information is not limited to just the results contained in the documents, but also extend to and include the methodologies and selection of specific applicable regulations based on decades of experience in developing and presenting such information to regulatory authorities. The selection of the applicable regulations and the methods of showing compliance to those regulations is a sophisticated exercise that, in this case, was conducted by an applicant with decades of certification experience. An applicant who is new to certification to have access to this information has a competitive leg up.

24. Although some components and other details of the MRJ and CSeries aircraft are different, the basic configuration of the probes and methods of computing air data information are similar enough that the regulatory and flight test approaches will be at least similar if not the same.

25. Each flight configuration of landing gear, power setting, and flap, slat and spoiler positions combined with a wide range of altitudes, airspeed and angle of attack, was selected by Bombardier to assure the Transport Canada approved production temperature, airspeed, altitude and Mach number are as accurate as possible for reasons of maximum safety

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and efficiency, complied at the lowest possible cost. A competitor with a similar airplane could simply copy the sequence, configurations, altitude and airspeed combinations and number of data points at each condition to be confident that their system meets all requirements at the lowest cost and in the shortest possible time.

26. The airspeed calibration process shown in these documents represents many hours of planning, leveraging decades of flight tests on many Bombardier airplane models.

27. Each discrete data point of the hundreds of measurements shown in each report represents several seconds of stabilized flight. The act of achieving each stabilized test condition requires set-up time to ensure the precise airspeed, altitude and airplane configuration necessary to record the data.

28. Since each discrete condition requires time and associated cost, the selection of these test conditions is critical to program schedule, cost, airframe time and resource allocation. Selecting exactly the right number of data points for each flight test segment requires experience and deep knowledge. Too many will be wasteful, too few will lead to the added time and expense of retesting. A competitor with access to these reports would find great value in simply following the steps developed by Bombardier.

CSeries Production Flight Test Profile (Rev 5.0)

29. Paragraph 52 of Dr. Hansman's declaration closes on page 19 with this statement: "While the title of the document indicates a fight-test profile, the document does not appear to describe a specific profile or sequence of testing." This statement is completely incorrect and misleading in all respects. The document provides in minute detail a pre-delivery ground and engineering FLIGHT TEST profile, intended to "wring out" the airplane

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and all its systems throughout its flight envelope to assure that it fully conforms to type design and is in a condition for safe operation. The flight test community has suffered tragic consequences because of such cavalier attitudes from the uninitiated, and I find it difficult to believe Dr. Hansman even glanced at the document.

30. The Bombardier Production Flight Test Profile is clearly proprietary because it can only have been developed over time by Bombardier. The extreme detail and thoroughness that is necessary for production flight test provides a roadmap that can easily be modified for use by another manufacturer. Further, any production flight test is typically an engineering test, flown by engineer pilots who are trained in flight test techniques. This is necessary because some test conditions exceed normal airplane flight manual limits, as noted in Section 1, "Preface" of the Production Flight Test Profile. Those specific conditions are noted with a double asterisk "**" in the Table of Contents.

31. The sequence of equipment and system checks and tests is intended to ensure conformity to type design and demonstrate full functionality. It is a complex process that would be costly to develop from a clean sheet, and likely would require many years of evolution before it might be as thorough as the Bombardier document.

32. This detailed checklist is over 100 pages, and each Production Certificate (PC) holder MUST develop a process to ensure each new airplane is airworthy.

33. The fact that a checklist of over 100 pages has been developed by Bombardier, to demonstrate compliance with a regulation that simply states an airplane presented for airworthiness certification or approval must conform to its approved design and be in a condition for safe operation, leads to the inescapable conclusion that the Production Flight

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Test Profile has been developed specifically by Bombardier but can easily be modified for aircraft to be certificated under Part 25.

34. A competitor who gains access to a complete production flight test process for a commercial aircraft like the CSeries will have the gift of a fully compliant and proven pre-delivery checklist that has been proven through decades of successfully delivering hundreds of airplanes.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

EXECUTED at 2:00 PM, this 4th day of January, 2019.

Michael Borfitz

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Certificate of service

I hereby certify that on January 4th, 2019, I electronically filed the foregoing with the Clerk of the Court using the CM/ECF system.

s/ John D. Denkenberger
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